Appendix C. Rock-Property Database, Nevada Test Site and Vicinity, Nye County, Nevada

Rock-property data were compiled for both underground and surface sites located on and around the NTS. Appendix C data are available at URL: http://pubs.usgs.gov/ds/2007/297/.

Table C1. Description of Rock-Property Database field contents.

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
SrtOrdUSGS	USGS NTS sort order	–	Emplacement and exploratory holes typically are displayed together. Many sites also have multiple completion intervals within the same hole. Therefore, a sort order number is assigned to all USGS sites associated with DOE and/or DOD projects in Nevada. This field is modified as new sites are added.	
UnqNoUSGS	USGS NTS unique number	–	Spatial (*X*-*Y*) coordinates are unavailable at some locations. Therefore, USGS site identification numbers cannot be established in the USGS NWIS database Sitefile for these sites. Because NWIS site identification numbers cannot be assigned to all sites, it is necessary to assign a unique site number to all USGS sites associated with USGS DOE/DOD projects in Nevada. Although the unique numbers were initially assigned in the same order as the USGS NTS sort order, new sites are assigned the next available sequential number.	
NTSArea	NTS area	–	NTS Administrative Area number (see fig. 1). Entries are listed in **bold** type where sites are located in areas other than the hole name implies. For example, USGS hole name **U - 4t** is actually located in NTS area **07**.	
HleNmeUSGS	USGS hole name	–	USGS hole name designation. Entries are listed in **bold** type where sites are located in areas other than the hole name implies.	
SmpIntNo	Sample interval number	–	Sequence of sample interval.	
SmpIntSeq	Sample sequence number	–	Sequence of samples, when multiple analyses are reported within a sample interval.	
SmpIntTop	Sample interval top	–	Depth to top of sample interval; below land surface for boreholes and shafts; from portal opening for tunnels and drifts.	
SmpIntBtm	Sample interval bottom	–	Depth to bottom of sample interval; below land surface for boreholes and shafts; from portal opening for tunnels and drifts.	
Unt01	Units	–	Sample depth reporting units.	
Date	Date	–	Date sample analyses reported (or analyzed; if known).	
SpecGrav	Specific gravity	–	Specific gravity (sample density/water density).	
GrnDen	Grain density	–	Grain density (dry weight/grain volume).	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
Unt02	Units	–	Grain density reporting units.	
DryBlkDen	Dry bulk density	–	Dry bulk density. Bulk density is defined as dry bulk density.	
Unt03	Units	–	Bulk density reporting units.	
WetBlkDen	Wet (natural-state) bulk density	–	Wet bulk density. Also reported as natural- or sample-state bulk density.	
Unt04	Units	–	Bulk density reporting units.	
WetH2OWtPer	Wet H_2O content by weight (percent)	–	Wet H_2O content, by weight; as percentage. Computed as: [% H_2O volume / natural-state bulk density].	
DryH2OWtPer	Dry H_2O content by weight (percent)	–	Dry H_2O content, by weight; as percentage.	
H2OVolPer	H_2O content by volume (percent)	–	H_2O content, by volume; as percentage. Computed as: [(natural-state bulk density – dry bulk density) * 100].	
DryCO2WtPer	Dry CO_2 content by weight (percent)	–	Dry CO_2 content, by weight; as percentage.	
PorosityPer	Porosity (percent)	–	Porosity; as percentage.	
EffPorPer	Effective porosity (percent)	–	Effective porosity; as percentage.	
Rmk01	Remarks	–	Remarks concerning sample analyses. **Note:** [the **Copy EQ** (hot) button contained in this column (**X**) automatically recomputes the following five values (blue-shaded columns Y-Z, AA-AB, and AD) for the entire **rck_pty** worksheet utilizing the equations contained in row 2 (the hidden row)].	
CalcPorPer	Computed porosity (percent)	–	Computed porosity; as percentage. Computed, using dry bulk density, as: [{1 - (dry bulk density / grain density)} * 100]. Computed, using natural-state bulk density, as: [{1 - ((natural-state bulk density / grain density) * (1 - % wet H_2O weight / 100))} * 100]. **Note: [Data generated in this column represent raw, interval-specific, values that have not been corrected, averaged, or weighted to a proposed working point and therefore may not agree with referenced data]**.	
CalcGasFilPorPer	Computed gas-filled porosity (percent)	–	Computed gas-filled porosity; as percentage. Computed as: [porosity - (% wet H_2O weight * natural-state bulk density)]. **Note: [Data generated in this column represent raw, interval-specific, values that have not been corrected, averaged, or weighted to a proposed working point and therefore may not agree with referenced data].**	
CalcSatPer	Computed saturation (percent)	–	Computed saturation; as percentage. Computed as: [{(% wet H2O weight * natural-state bulk density) / porosity}100]. **Note: [Data generated in this column represent raw, interval-specific, values that have not been corrected, averaged, or weighted to a proposed working point and therefore may not agree with referenced data].**	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
CalcDryBlkDen	Computed dry bulk density	–	Computed dry bulk density. Computed as: [natural-state bulk density * {1 - (% wet H2O weight / 100)}]. **Note: [Data generated in this column represent raw, interval-specific, values that have not been corrected, averaged, or weighted to a proposed working point and therefore may not agree with referenced data].**	
Unt05	Units	–	Bulk density reporting units.	
CalcSatBlkDen	Computed saturated bulk density	–	Computed saturated bulk density. Computed, using analyzed dry bulk density, as: [analyzed dry bulk density + (porosity / 100)]. Computed, computed dry bulk density, as: [computed dry bulk density + (porosity / 100)]. **Note: [Data generated in this column represent raw, interval-specific, values that have not been corrected, averaged, or weighted to a proposed working point and therefore may not agree with referenced data].**	
Unt06	Units	–	Bulk density reporting units.	
YoungsMod	Young's modulus	–	Young's modulus (or modulus of elasticity or tensile modulus).	
BlkMod	Bulk modulus	–	Bulk modulus (or compression modulus).	
ShrMod	Shear modulus	–	Shear modulus (or modulus of rigidity or 2nd Lame' constant).	
ModUnt	Moduli units	–	Moduli reporting units.	
PoissonsRat	Poisson's ratio	–	Poisson's ratio; a dimensionless value.	
CmpVel	Compressional velocity	–	Compressional velocity (or longitudinal velocity; P waves).	
ShrVel	Shear velocity	–	Shear velocity (or transverse velocity; S waves).	
VelUnt	Velocity units	–	Velocity reporting units.	
SmpPropSt	Sample properties state	–	Moduli (Young's, bulk, and shear) and velocity (compressional and shear) properties as well as Poisson's ratio are reported for both static and dynamic states. Mechanical rock property states are: [D - dynamic; S - static; U (or blank) - undefined].	
Rmk02	Remarks	–	Remarks concerning sample analyses.	
UncCmpStr	Unconfined compressive strength	–	Unconfined compressive strength.	
Unt07	Units	–	Unconfined compressive strength reporting units.	
SecYngsMod	Secant Young's modulus	–	Secant Young's modulus.	
Unt08	Units	–	Secant Young's modulus reporting units.	
SecRng	Secant range	–	Secant range.	
Unt09	Units	–	Secant range reporting units.	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
MagSusc	Magnetic susceptibility	–	Magnetic susceptibility.	
Unt10	Units	–	Magnetic susceptibility reporting units.	
EndParCor	End parallelism of core	–	End parallelism of core.	
Unt11	Units	–	End parallelism of core reporting units.	
ShrHrd	Shore hardness	–	Shore hardness.	
Unt12	Units	–	Shore hardness reporting units.	
AnlyzAgy	Analyzing agency	–	Agency that performed the sample analyses.	
AnlyzAgy	Analyzing agency	Birdwell	Birdwell Division of Seismograph Service Corporation (SSC).	
AnlyzAgy	Analyzing agency	BN	Bechtel Nevada (BN).	
AnlyzAgy	Analyzing agency	CL	Core Laboratories, Inc. (CL), Bakersfield, California; Dallas, Texas.	
AnlyzAgy	Analyzing agency	DTRA	DOD, Defense Threat Reduction Agency (DTRA).	
AnlyzAgy	Analyzing agency	DRI	Desert Research Institute (DRI).	
AnlyzAgy	Analyzing agency	DS	Daniel B. Stephens and Associates, Inc. (DS), Albuquerque, NM.	
AnlyzAgy	Analyzing agency	F&S	Fenix and Scisson, Inc. (F&S).	
AnlyzAgy	Analyzing agency	FSN	Fenix and Scisson of Nevada (FSN).	
AnlyzAgy	Analyzing agency	H&N	Holmes & Narver, Inc. (H&N).	
AnlyzAgy	Analyzing agency	LANL	Los Alamos National Laboratory (LANL).	
AnlyzAgy	Analyzing agency	LLNL	Lawrence Livermore National Laboratory (LLNL).	
AnlyzAgy	Analyzing agency	NSTec	National Security Technologies, LLC (NSTec).	
AnlyzAgy	Analyzing agency	NTL	Nevada Testing Laboratories, LTD. (NTL).	
AnlyzAgy	Analyzing agency	PTL	Pittsburgh Testing Laboratory (PTL), Salt Lake City, Utah.	
AnlyzAgy	Analyzing agency	REECo	Reynolds Electrical & Engineering Company (REECo).	
AnlyzAgy	Analyzing agency	RSN	Raytheon Services Nevada (RSN).	
AnlyzAgy	Analyzing agency	SNL	Sandia National Laboratories (SNL).	
AnlyzAgy	Analyzing agency	TT	Terra Tek, Inc. (TT), Salt Lake City, Utah, a Schlumberger company; sometimes referred to as TerraTek Research.	
AnlyzAgy	Analyzing agency	UI	University of Illinois (UI).	
AnlyzAgy	Analyzing agency	USACE	U.S. Army Corps of Engineers (USACE).	
AnlyzAgy	Analyzing agency	USGS	USGS.	
DatSrc	Data source	–	Agency that reported rock-property data.	
DatSrc	Data source	Birdwell	Birdwell Division of Seismograph Service Corporation (SSC).	
DatSrc	Data source	BN	Bechtel Nevada (BN).	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
DatSrc	Data source	CL	Core Laboratories, Inc. (CL), Bakersfield, California; Dallas, Texas.	
DatSrc	Data source	DTRA	DOD, Defense Threat Reduction Agency (DTRA).	
DatSrc	Data source	DRI	Desert Research Institute (DRI).	
DatSrc	Data source	DS	Daniel B. Stephens and Associates, Inc. (DS), Albuquerque, NM.	
DatSrc	Data source	F&S	Fenix and Scisson, Inc. (F&S).	
DatSrc	Data source	FSN	Fenix and Scisson of Nevada (FSN).	
DatSrc	Data source	H&N	Holmes & Narver, Inc. (H&N).	
DatSrc	Data source	LANL	Los Alamos National Laboratory (LANL).	
DatSrc	Data source	LLNL	Lawrence Livermore National Laboratory (LLNL).	
DatSrc	Data source	NSTec	National Security Technologies, LLC (NSTec).	
DatSrc	Data source	NTL	Nevada Testing Laboratories, LTD. (NTL).	
DatSrc	Data source	PTL	Pittsburgh Testing Laboratory (PTL), Salt Lake City, Utah.	
DatSrc	Data source	REECo	Reynolds Electrical & Engineering Company (REECo).	
DatSrc	Data source	RSN	Raytheon Services Nevada (RSN).	
DatSrc	Data source	SNL	Sandia National Laboratories (SNL).	
DatSrc	Data source	TT	Terra Tek, Inc. (TT), Salt Lake City, Utah, a Schlumberger company; sometimes referred to as TerraTek Research.	
DatSrc	Data source	UI	University of Illinois (UI).	
DatSrc	Data source	USACE	U.S. Army Corps of Engineers (USACE).	
DatSrc	Data source	USGS	USGS.	
RcdTypDsc	Record type or description	–	Record description and/or document type.	
RcdTypDsc	Record type or description	BN/PF	Bechtel Nevada (BN) Project Files (PF).	
RcdTypDsc	Record type or description	DTRA/PF	DOD, Defense Threat Reduction Agency (DTRA) Project Files (PF).	
RcdTypDsc	Record type or description	DRI/PF	Desert Research Institute (DRI) Project Files (PF).	
RcdTypDsc	Record type or description	DS/LR	Daniel B. Stephens and Associates, Inc. (DS) Laboratory Report (LR).	
RcdTypDsc	Record type or description	F&S/PF	Fenix and Scisson, Inc. (F&S) Project Files (PF).	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
RcdTypDsc	Record type or description	FSN/PF	Fenix and Scisson of Nevada (FSN) Project Files (PF).	
RcdTypDsc	Record type or description	H&N/MTL	Holmes & Narver, Inc. (H&N) Materials Testing Laboratory (MTL).	
RcdTypDsc	Record type or description	LANL/PF	Los Alamos National Laboratory (LANL) Project Files (PF); referred to as “Blue Folders.”	
RcdTypDsc	Record type or description	LLNL/PF	Lawrence Livermore National Laboratory (LLNL) Project Files (PF).	
RcdTypDsc	Record type or description	NSTec/PF	National Security Technologies, LLC. (NSTec) Project Files (PF).	
RcdTypDsc	Record type or description	REECo/ES	Reynolds Electrical & Engineering Company (REECo) Environmental Sciences (ES).	
RcdTypDsc	Record type or description	REECo/ML	Reynolds Electrical & Engineering Company (REECo) Medical Laboratory (ML).	
RcdTypDsc	Record type or description	REECo/PF	Reynolds Electrical & Engineering Company (REECo) Project Files (PF).	
RcdTypDsc	Record type or description	RSN/MTL	Raytheon Services Nevada (RSN) Materials Testing Laboratory (MTL).	
RcdTypDsc	Record type or description	RSN/PF	Raytheon Services Nevada (RSN) Project Files (PF).	
RcdTypDsc	Record type or description	SNL/PF	Sandia National Laboratories (SNL) Project Files (PF).	
RcdTypDsc	Record type or description	UI/TL	University of Illinois (UI) Talbot Laboratory (TL).	
RcdTypDsc	Record type or description	USACE/WES	U.S. Army Corps of Engineers (USACE) Waterways Experiment Station (WES), Vicksburg, Mississippi.	
RcdTypDsc	Record type or description	USGS/EGBL/PPR	U.S. Geological Survey (USGS) Engineering Geology Branch Laboratory (EGBL) Physical Properties Results (PPR).	
RcdTypDsc	Record type or description	USGS/PF	USGS Project Files (PF).	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
RptRef	Report reference	–	Published report that contains rock-property data. A complete list of acronyms and abbreviations used in USGS and other reports is included in the usgs_rpt and nts_acr_abv worksheets in the nts_rck_pty spreadsheet (appendix C). **NOTE: [USGS Technical Letters are considered internal correspondence and are not available for public release unless the report has been assigned a USGS Open-File Report number. Technical Letters prepared under the USGS Hydrologic Resource Management Program (HRMP, formerly Hydrology/Radionuclide Migration Program) and assigned "blanket open-file status" are designated "USGS-474-number." Technical Letters prepared under the USGS Yucca Mountain Program (YMP) and assigned "blanket open-file status" are designated "USGS-1543-number." Furthermore, some reports prepared by the National Laboratories and the various DOE and DOD subcontractors also may be considered internal correspondence and not available for public release. Users interested in these reports must check with the source agency to determine availability].**	
Invst	Investigators	–	Authors and/or investigators.	
RecLoc	Record location	–	Physical location of rock-property record.	
HleTyp	Hole type	–	Type of vertical or horizontal drilling or excavation.	
HleTyp	Hole type	Borehole	Vertical surface location; includes wells and vertical test holes.	
HleTyp	Hole type	Crater	Vertical surface location.	
HleTyp	Hole type	Drift	Horizontal underground location; includes tunnels and horizontal test holes.	
HleTyp	Hole type	Multiple Wells	Multiple wells.	
HleTyp	Hole type	Outcrop	Surface location.	
HleTyp	Hole type	Shaft	Vertical surface location.	
HleTyp	Hole type	Spring	Spring.	
HleTyp	Hole type	Streambed	Streambed.	
HleTyp	Hole type	Surface	Surface location.	
HleTyp	Hole type	Trench	Horizontal surface location.	
HleTyp	Hole type	Unknown	Hole type not known.	
TnlDftConSta	Tunnel or drift construction station	–	Construction station at collar location (portal opening), for tunnels and drifts (i.e. - 9+17 is 917 ft; 10+72,195' is a 195 ft hole at the 1,072 ft station; etc.).	
ConStaRmk	Construction station remarks	–	Remarks concerning the portal opening (collar location), for tunnels and drifts (i.e. - In U-12e.14 main drift; Alcove; Face; Invert; Lft Rib; Rt Rib; etc.).	
NVSPE27	Nevada SPCS Easting NAD27	–	Nevada state plane coordinates (SPCS), Easting, central zone, in feet; North American Datum of 1927 (NAD27).	
NVSPN27	Nevada SPCS Northing NAD27	–	Nevada state plane coordinates (SPCS), Northing, central zone, in feet; North American Datum of 1927 (NAD27).	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
NVSPErr	SPCS error	--	SPCS error, in feet. Blank if unknown.	
AltPorOpn29ft	Altitude at portal opening NGVD29 (ft)	–	Altitude at the collar location of the portal opening, for tunnels and drifts; in feet above mean sea level; National Geodetic Vertical Datum of 1929 (NGVD29).	
BngPorOpnDeg	Bearing from portal opening (degrees)	–	Bearing from the portal opening, for tunnels and drifts; in degrees, minutes, and seconds or decimal degrees (i.e. - S0720958W is South, 72 degrees, 9 minutes, 58 seconds West; N0325529E is North, 32 degrees, 55 minutes, 29 seconds East; N052.75W is North 52 and three-quarter degrees West; etc.)	
IncPorOpnDeg	Inclination from portal opening (degrees)	–	Inclination from the portal opening, for tunnels and drifts; in degrees, minutes, and seconds or decimal degrees (i.e. - 0045825 is a hole 4 degrees, 58 minutes, 25 seconds above horizontal; 2700000 is a vertical hole below horizontal; 0900000 is a vertical hole above horizontal; 0000000 and 1800000 are horizontal holes; 0150000 and 1650000 are holes 15 degrees up (above horizontal); 3150000 and 2250000 are holes 45 degrees down (below horizontal); 356.5 is a hole 3 and one-half degrees below horizontal; 170.25 is 9 and three-quarter degrees above horizontal; etc.). Inclinations are linked to bearings, so values near horizontal for holes bearing north or east would be added to zero for holes inclined above horizontal and subtracted from 360 for holes below horizontal; conversely, values near horizontal for holes bearing south or west would be subtracted from 180 for holes inclined above horizontal and added to 180 for holes below horizontal.	
AltLndSur29ft	Altitude of land surface NGVD29 (ft)	–	Altitude of land surface within a reasonable proximity of the site; in feet above mean sea level; National Geodetic Vertical Datum of 1929 (NGVD29). This is an average of the surrounding ground-surface elevation. If the original surface has been altered, estimate the altitude based on nearby unaltered terrain.	
AltMth	Altitude method	–	Method used to determine altitude of land surface.	
AltMth	Altitude method	A	Altimeter.	
AltMth	Altitude method	D	Differentially-corrected Global Positioning System (DGPS).	
AltMth	Altitude method	G	Global Positioning System (GPS).	
AltMth	Altitude method	I	Interferometric Synthetic Aperture Radar (IfSAR), airplane.	
AltMth	Altitude method	J	Light Detection And Ranging (LiDAR), airplane.	
AltMth	Altitude method	L	Level or other surveying method.	
AltMth	Altitude method	M	Interpolated from topographic map [report accuracy as ± one-half the contour interval (or supplementary contour interval) specified on the quadrangle].	
AltMth	Altitude method	N	Interpolated from digital elevation model (DEM).	
AltMth	Altitude method	R	Reported.	
AltMth	Altitude method	U	Unknown.	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
AltAcc	Altitude accuracy	–	Altitude accuracy; in feet (decimal values for accuracies less than 1 ft).	
AltAcc	Altitude accuracy	U	Unknown.	
SitCmpDt	Site completion date	–	Date hole construction completed.	
HleDthft	Hole depth (ft)	–	Hole depth; in feet below land surface for boreholes and shafts; in feet from portal opening for tunnels and drifts.	
RedBkHleNo	Redbook hole number	–	Redbook hole numbers are currently assigned to new holes completed at the NTS by National Security Technologies, LLC (NSTec). Entries are listed in **bold** type where sites are located in areas other than the hole name implies.	
RedBkHleNo	Redbook hole number	–	Redbook hole numbers listed in the Raytheon Services Nevada (RSN) Nevada Test Site Drilling and Mining Summary (last updated 12-31-90) and previously in the Fenix and Scisson of Nevada NTS Drilling and Mining Summary (last updated 06-30-89; formerly Fenix and Scisson, Inc.) were assigned according to the type of hole drilled or mined, site location (NTS area), and sequence code for the consecutive order in which the hole was drilled, mined, or recompleted. Emplacement holes for nuclear weapons tests begin with the letter U, followed by a dash (-), NTS area number (fig. 1), and sequence code (letters a-z, aa-az, ba-bz, …, za-zz). Exploratory holes follow the same naming convention as emplacement holes, but begin with the letters UE. Holes that begin with the letter U but were drilled or mined specifically to provide data that could not be collected from an emplacement hole follow the emplacement hole naming convention, but are assigned incremental letters or numbers, or both following the sequence code. The suffix letters indicate: [#, satellite hole; CH, cable hole; Ex. or Expl., exploratory hole; HTH, hydrologic test hole; Inst., instrument hole; ITS, integrated test system; PPS, pre-postshot hole; PS, post-shot hole; RNM, radionuclide migration hole; RWMS, radioactive waste management site; and S, substitute hole]. There are numerous exceptions to the standard naming convention. The prefix letters indicate: [HTH, hydrologic test hole; J, Jackass Flat; and RNM, radionuclide migration]. Numbers and letters following the dash in the exceptions represent sequence of site drilling or mining, not NTS location. Hole type also is commonly listed after the hole designation. For example: [Access Shaft; Cable Hole; Expl. Hole; Instrument; LOS (Line Of Sight) Drift; Sidetrack; Reentry Mining; Tunnel; Vent Hole; and Zero Station].	
RedBkHleNo	Redbook hole number	–	USGS DOE project-related holes in Central Nevada follow a similar naming convention. However emplacement holes begin with the letters UC and exploratory holes begin with the letters UCE.	
RedBkHleNo	Redbook hole number	–	USGS Yucca Mountain Project (YMP) holes at the NTS follow the exploratory hole naming convention. Offsite YMP holes begin with the letters USW to indicate underground southern Nevada waste. The suffix letters indicate: [G, geologic hole; GA, geologic angle hole; GU, geologic unsaturated zone hole; H, hydrologic hole; MX, missile-experimental hole (drilled for U.S. Air Force [USAF] MX Missile-Siting Investigation); N, neutron hole; p, Paleozoic or pre-Tertiary hole; RF, repository facility hole; UZ, unsaturated zone hole; V, volcanic hole; VSE, vertical shelter exploratory hole (drilled for USAF MX Missile-Siting Investigation); and WT water table hole].	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
RedBkHleNo	Redbook hole number	–	Environmental Restoration Program (ERP) holes at the NTS begin with the letters ER, followed by a dash, NTS area number (fig. 1), a dash, and an incremental sequence number. The NTS area number is replaced by suffix letters for ERP holes located offsite. The suffix letters indicate: [EC, area at the USAF Nellis Air Force Base Range (NAFBR) where the holes were drilled; and OV, Oasis Valley].	
RedBkHleNo	Redbook hole number	–	LLNL Containment Program Data Base hole names are 10 characters in length. The first character identifies the site location of the hole: [U, Nevada Test Site; C, Central Nevada Test Site; A, Amchitka Test Site; and O, offsite hole]. The second and third characters identify either the right-justified Area number for an NTS hole, or the two-letter state abbreviation (U.S. Postal Service abbreviation) for an offsite hole: [U 2, NTS hole in Area 2; U20, NTS hole in Area 20; and ONV, offsite hole in Nevada]. The fourth character is reserved for specially defined areas at the NTS: [U 9I, NTS hole in Area 9, in the ITS area]. Characters 5-10 identify the hole complex or group of holes (of different types) related to the emplacement hole. This may include letters or numbers. For an NTS hole, the fifth and sixth characters are alphabetical descriptors and usually complete the common hole name for an emplacement hole: [U 2 c, NTS hole in Area 2; U 2 ca, NTS hole in Area 2, drilled after U 2 c; and U 2 cb, NTS hole in Area 2, drilled after U 2 ca]. For offsite holes, these characters will indicate county name, on a limited space basis: [ONV NYE, offsite hole in Nevada, Nye County; and OCO RBL, offsite hole in Colorado, Rio Blanco County]. These characters also may indicate project identifiers: [U 1 RNM, NTS hole in Area 1, Radionuclide Migration Program; and U 12 ER, NTS hole in Area 12, Environmental Restoration Program]. LLNL Containment Program Data Base hole types are: [A, access; B, rad chem; C, core; D, Waterways experiment Station (WES); E, exploratory; F, tunnel; G, auger, crack investigation; H, emplacement (H A or H B is a centerpunch emplacement hole); I, instrument; J, PINEX or LOS; K, escape; L, cable; M, hydrologic test hole; N, tracer and sample, foil recovery; O, tunnel dynamics; P, post test; Q, seismic, high explosive; R, re-entry (R-S is a reentry shaft); S, shaft (W/S is a whipstock hole); T, test hole (many types); U, post-test hole, in crater; V, vent; W, water supply; X, pre-post test; Y, abandoned; Z, waste storage; 1, rack assembly; 2, dump; 3, oil well; 4, gas well; 5, geothermal well; and ?, unknown hole type]. Multiple uses of a hole are indicated by consecutively adding hole type abbreviations in this field. If the hole is closely associated with another hole, or if it also is known by another name, this is indicated by /____. For example, the hole name: [U 2 bt HE/U2BU H] means that U 2 bt was initially an emplacement hole that became an exploratory hole. U 2 bt also is an exploratory hole for the nearby emplacement hole U 2 bu.	
FmrOthHleNme	Former or other hole name	–	Former or other names utilized for holes.	
AgyCdUSGSNWIS	NWIS agency code	USGS	USGS NWIS code to indicate the reporting agency. All sites currently populated in the rock-property database are assigned as USGS.	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
SitIDNoUSGSNWIS	NWIS site identification number	–	USGS NWIS site identification number.	
SitIDNoUSGSNWIS	NWIS site identification number	–	Downstream order numbers are assigned for surface-water, on-stream, sites. The first two digits of the station number indicate the part or major drainage system formerly used for USGS Water-Supply Papers entitled “Surface Water Supply of the United States” and the remaining digits indicate the downstream order within the part. This site number is left-justified. Although downstream identification numbers have been converted to a variable length format, with up to 14 digits available, 8 digits are normally assigned.	
SitIDNoUSGSNWIS	NWIS site identification number	–	Numbering system for sites on open water bodies, off-channel sites, wells, springs, etc., is based on the grid system of latitude and longitude. Although this number is initially determined from the best known latitude/longitude location, plus a 2-digit sequence number for the number of sites located at those coordinates, it retains no locational relevance once the site is created in the database. The overall designation consists of 15 digits. The values of latitude and longitude are updated as better coordinates become available, and should always be used for locating sites or plotting locations.	
Lat27	Latitude NAD27	–	Latitude; in degrees, minutes, and seconds [two digits are available for decimal seconds]; North American Datum of 1927 (NAD27).	
Lng27	Longitude NAD27	–	Longitude; in degrees, minutes, and seconds [two digits are available for decimal seconds]; North American Datum of 1927 (NAD27).	
LocMth	Location method	–	Method used to determine latitude and longitude coordinates.	
LocMth	Location method	C	Calculated from land net.	
LocMth	Location method	D	Differentially-corrected Global Positioning System (DGPS).	
LocMth	Location method	G	Global positioning system (GPS), uncorrected [Standard Positioning Service (SPS) and Precise Positioning Service (PPS)].	
LocMth	Location method	L	Long-range navigation (Loran) system.	
LocMth	Location method	M	Interpolated from map.	
LocMth	Location method	N	Interpolated from digital map.	
LocMth	Location method	R	Reported.	
LocMth	Location method	S	Transit, theodolite, or other surveying method.	
LocMth	Location method	U	Unknown.	
LocAcc	Location accuracy	–	Accuracy of latitude and longitude coordinates.	
LocAcc	Location accuracy	H	Hundredth second.	
LocAcc	Location accuracy	1	Tenth second.	
LocAcc	Location accuracy	5	Half second.	

Table C1. Description of Rock-Property Database field contents.—Continued

[Access field names longer than 8 characters indicated by red text because longer names may be incompatible with some database and Graphic Information System (GIS) applications. Blank field source indicates not applicable, not available online, or not accessible to the public. **Abbreviations:** DOD, U.S. Department of Defense; DOE, U.S. Department of Energy; NTS, Nevada Test Site; NWIS, National Water Information System; USGS, U.S. Geological Survey; ft, foot; –, not applicable]

Access field name	Excel field name	Field code	Field explanation	Field source
LocAcc	Location accuracy	S	Second.	
LocAcc	Location accuracy	R	Three seconds.	
LocAcc	Location accuracy	F	Five seconds.	
LocAcc	Location accuracy	T	Ten seconds.	
LocAcc	Location accuracy	M	Minute.	
LocAcc	Location accuracy	U	Unknown.	
DecLat83	Decimal latitude NAD83	–	Latitude, in decimal degrees [automatically generated by the NWIS system software]; North American Datum of 1983 (NAD83).	
DecLng83	Decimal longitude NAD83	–	Longitude, in decimal degrees [automatically generated by NWIS system software]; North American Datum of 1983 (NAD83).	
UTME27m	UTM Easting NAD27 (meters)	–	Universal Transverse Mercator coordinates, Easting, zone 11, in meters; North American Datum of 1927 (NAD27).	
UTMN27m	UTM Northing NAD27 (meters)	–	Universal Transverse Mercator coordinates, Northing, zone 11, in meters; North American Datum of 1927 (NAD27).	
UTMErr	UTM error	–	UTM error, in meters. Blank if unknown.	
Rmk03	Remarks	–	Pertinent remarks pertaining to the rock properties.	
DtRcdLstUpd	Date record last updated	–	Date of data entry (compiled into electronic format) is listed if a row of record has not been modified. The date of last (most recent) update is listed if a row of record has been modified. This date does not indicate which columns of data have been modified; only that records have been updated within a particular row. Dates are listed as yyyymmdd (4-digit year; 2-digit month; 2-digit day).	
URLAdr	URL address	–	Link to online website and database.	